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REMARKS

The application has been reviewed in light of the final Office Action dated January 5, 2005. Claims 1-29 were pending, with claims 1, 10, 19, 28 and 29 being in independent form. By this Amendment, new dependent claim 30 has been added. Applicant submits that no new matter and no new issues have been introduced by the claim Amendment. Support for new claim 30 may be found in the application at, for example, page 12, line 19 through page 13, line 6, and page 26, line 21 through page 27, line 2.

The specification was objected to. The Office Action states that the incorporation of essential material in the specification by reference to a foreign application or patent is improper.

The application states as follows at page 31, lines 12-15 of the specification:

This patent specification is based on Japanese patent application No. JPAP2001-035257 filed on February 13, 2001, in the Japanese Patent Office, the entire contents of which are incorporated by reference herein.

However, the Office Action does not identify the essential material that is allegedly incorporated by reference in the specification. Clarification is requested.

Applicant maintains that the pending claims are supported by the specification, without reference to Japanese patent application No. JPAP2001-035257. Therefore, reference to Japanese patent application No. JPAP2001-035257 is not necessary to support essential material.

Accordingly, withdrawal of the objection to the specification is requested.

Claims 1, 2, 5, 6, 8-11, 14, 15, 17-20, 23, 24 and 26-29 were rejected under 35 U.S.C. §103(a) as purportedly unpatentable over U.S. Patent No. 4,536,839 to Shah in view of U.S. Patent No. 6,073,132 to Gebman. Claims 3, 4, 7, 12, 13, 16, 21, 22 and 25 were rejected under 35 U.S.C. § 103(a) as purportedly obvious over Shah and Gebman, in view of U.S. Patent No. 6,708,248 to Garrett.

Applicant has carefully considered the Examiner's comments and the cited art, and

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respectfully submits that independent claims 1, 10, 19, 28 and 29 are patentable over the cited art, for at least the following reasons.

This application is directed to arbitration of bus access requests. In any electronic system in which plural functional units share a bus through which the units communicate with each other or other units in the system, there is generally a need for arbitrating bus access requests. More specifically, when two or more unit request access to the bus at approximately the same time, there is a need to resolve which one of the requesters is allowed to access the bus first, since typically only one unit can access the bus at any given moment. As discussed in the Background section of the application, conventionally, the bus arbitration uses a fixed priority order or a round robin priority (that is, each unit in turn has an opportunity to have the highest priority).

This application describes improved bus arbitration schemes which do not use fixed priority order or round robin priority.

For example, independent claim 1 is directed to a bus arbitration apparatus comprising a storage, a priority order determiner and an arbitrator. The storage stores a plurality of selection signals for specifying a priority order against a number N of requests for use of a bus. The priority order determiner causes the storage to output one of the plurality of selection signals in a predetermined sequence in response to a demand for arbitration. The arbitrator performs an arbitration operation based on the priority order against the number N of requests specified by the one of the plurality of selection signals which is output from the storage.

Shah, as understood by Applicant, is directed to an arbitrator, in a multiprocessor system, for selecting one of plural microprocessors requesting access to a memory device.

Shah was cited as the primary reference cited in support of the rejections under 35 U.S.C. §103. However, as acknowledged in the Office Action, Shah does not disclose or suggest arbitration of plural requests for use of a bus from plural respective bus access requestors.

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Therefore, Applicant submits that Shah is not relevant art and one skilled in the art would not have looked to the teachings of Shah for a solution to the problem of arbitrating plural requests for use of a bus from plural respective bus access requestors. For these same reasons, one skilled in the art would not have combined the teachings of Shah with the teachings of Gehman.

Gehman, as understood by Applicant, discloses arbitration of requests for access to a system bus.

Applicant does not find disclosure or suggestion in Gehman, however, of a bus arbitration apparatus comprising a storage, a priority order determiner and an arbitrator, wherein the storage stores a plurality of selection signals for specifying a priority order against a number N of requests for use of a bus, the priority order determiner cause the storage to output one of the plurality of selection signals in a predetermined sequence in response to a demand for arbitration, and the arbitrator performs an arbitration operation based on the priority order against the number N of requests specified by the one of the plurality of selection signals which is output from the storage, as provided by the claimed invention of claim 1.

Garrett, as understood by Applicant, is directed to a memory system with channel multiplexing of multiple memory devices. Garrett was cited in the Office Action as purportedly disclosing use of non-volatile storage.

Applicant does not find disclosure or suggestion by the cited art, however, of bus arbitration apparatuses and bus arbitration methods, as described in the pending claims.

Accordingly, for at least the above-stated reasons, Applicant respectfully submits that independent claims 1, 10, 19, 28 and 29, and the claims depending therefrom, are patentable over the cited art.

If a petition for an extension of time is required to make this response timely, this paper

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should be considered to be such a petition. The Office is hereby authorized to charge any fees that may be required in connection with this amendment and to credit any overpayment to our Deposit Account No. 03-3125.

If a telephone interview could advance the prosecution of this application, the Examiner is respectfully requested to call the undersigned attorney.

Allowance of this application is respectfully requested.

Respectfully submitted,



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